



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2012–0002]

[FXES11130900000C6-123-FF09E30000]

RIN 1018–AX59

Endangered and Threatened Wildlife and Plants; Removal of the Magazine Mountain Shagreen from the List of Endangered and Threatened Wildlife

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: Under the authority of the Endangered Species Act of 1973, as amended (Act), we, the U.S. Fish and Wildlife Service (Service), remove the Magazine Mountain shagreen (*Inflectarius magazinensis*) from the Federal List of Endangered and Threatened Wildlife (delist). This determination is based on a thorough review of the best available scientific and commercial data, which indicate that the threats to this species have been

eliminated or reduced to the point that the species has recovered and no longer meets the definition of threatened or endangered under the Act.

DATES: This rule becomes effective [INSERT DATE 30 DAYS AFTER DATE OF FEDERAL REGISTER PUBLICATION].

ADDRESSES: This final rule, comments and materials received, as well as supporting documentation used in the preparation of this rule, are available on the Internet at <http://www.regulations.gov> [Docket No. FWS-R4-ES-2012-0002]. These materials are also available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Arkansas Ecological Services Field Office, 110 South Amity Road, Suite 300, Conway, AR 72032; 501-513-4470 (phone); 501-513-4480 (fax). Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Services (FIRS) at 800-877-8339.

FOR FURTHER INFORMATION CONTACT: James F. Boggs, Field Office Supervisor, Phone: 501-513-4470. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800-877-8339. Direct all written questions or requests for additional information to: MAGAZINE MOUNTAIN SHAGREEN QUESTIONS, U.S. Fish and Wildlife Service, Arkansas Ecological Services Field Office, 110 South Amity Road, Suite 300, Conway, AR 72032.

SUPPLEMENTARY INFORMATION:

Background

Previous Federal Actions—On April 17, 1989, we published a final rule in the **Federal Register** (54 FR 15206) listing Magazine Mountain shagreen as threatened. The final rule identified the following threats to Magazine Mountain shagreen: loss of habitat due to a military proposal to conduct troop and heavy equipment movements and artillery operations on Magazine Mountain; loss of habitat due to development of a new State park on Magazine Mountain that would include construction of new buildings, roads, and trails; increased recreational use due to development of the State park; U.S. Department of Agriculture Forest Service (USFS) use of the land; and increased vulnerability to collecting and adverse habitat modification due to the species' restricted range. On February 1, 1994, we approved the Magazine Mountain Shagreen Recovery Plan (Service 1994, 12 pp.). On July 6, 2009, we initiated a 5-year status review of this species (74 FR 31972). This rule completes the status review. On June 19, 2012, we published a proposed rule in the **Federal Register** (77 FR 36460) to delist the Magazine Mountain shagreen. Additional details on previous Federal actions were provided in the proposed delisting rule (see 77 FR 36461).

Species Information—Magazine Mountain shagreen (*Inflectarius magazinensis*) is a medium-sized, dusky brown or buff-colored snail, measuring approximately 0.5 inch (in.; 13 millimeters (mm)) wide and 0.3 in. (7 mm) high. Although the species' taxonomic name has changed since it was listed in 1989, Magazine Mountain shagreen has not been split from or combined with any other land snail species or subspecies. The

entity that is now called *Inflectarius magazinensis* is the same entity that was known as *Mesodon magazinensis*. Additional details on the taxonomy of the species, including the name change, were provided in the proposed delisting rule (see 77 FR 36461).

Magazine Mountain shagreen is historically known from only the north slope of Magazine Mountain, Logan County, Arkansas (Pilsbry and Ferriss 1907, p. 545; Caldwell *et al.* 2009, p. 4). The south slopes of Magazine Mountain were surveyed extensively by Caldwell (1986 in Service 1994, p. 3) and Caldwell *et al.* (2009, p. 4), but they did not find Magazine Mountain shagreen on the south slopes. Populations occur in the portion of talus (a sloping mass of loose rocks) covered by vegetation or leaf litter at an elevation of 2,200 feet (ft; 670.6 meters (m)) to 2,600 ft (792.5 m) in the Savanna Sandstone formation calved (broken off or splintered into pieces) due to weathering and erosion of interbedded shales (Caldwell *et al.* 2009, p. 4; Service 1994, p. 3). The majority of talus is above 2,200 ft (670.6 m) elevation on the north and west slopes, with Magazine Mountain shagreen populations occurring between 2,400 ft (731.5 m) and 2,600 ft (792.5 m). In the north slope of Bear Hollow, the talus begins at approximately 2,200 ft (670.6 m) and in some calved areas extends to near 2,265 ft (690.4 m) elevation. In Bear Hollow, Magazine Mountain shagreen is restricted to the upper vegetated elevation end of this talus range (Caldwell *et al.* 2009, pp. 4–5).

The rocky slopes formed by the removal of softer, more easily eroded shale on the steep slopes cause the more resistant sandstone capping Magazine Mountain to break off and accumulate along the flanks. This situation provides the ideal habitat for Magazine Mountain shagreen (Cohoon and Vere 1988 in Caldwell *et al.* 2009, p. 6). The total amount of available habitat for Magazine Mountain shagreen consists of

approximately 21.6 acres (ac; 8.75 hectares (ha)) at 27 talus habitats on Magazine Mountain's west and north slopes (Caldwell *et al.* 2009, pp. 4–5).

The geology and forest community of Magazine Mountain were summarized by Caldwell *et al.* (2009, pp. 4–12). The average annual temperature is 5.9 degrees Fahrenheit (°F; 3.3 degrees Celsius (°C)) cooler on the summit than surrounding areas, and mid-summer temperatures are frequently 10 to 25 °F (5.6 to 13.9 °C) cooler. The mean annual precipitation at the summit of Magazine Mountain is 55 in. (139.7 centimeters (cm)), approximately 5 in. (12.7 cm) greater than the lower elevations. The USFS owns all lands on Magazine Mountain, while the Arkansas Department of Parks and Tourism (ADPT) has a long-term special use permit to operate the State park on the summit (Service 1994, p. 3; Whalen 2012, pers. comm.).

Little information is available on land snail associations (e.g., presence/absence of other land snails to predict habitat quality or occurrence of Magazine Mountain shagreen). Caldwell *et al.* (2009, pp. 13–14) determined the relative abundance (number of a particular species as a percentage of the total population of a given area) of species found with Magazine Mountain shagreen. Land snails such as the blade vertigo (*Vertigo milium*) and pale glyph (*Glyphyalinia lewisiana*) were found only on the south slope talus, while the oakwood liptooth (*Millerelix dorfeuilliana*) and immature *Succineidae* species were found on the north slope talus. Thus, presence of oakwood liptooth and immature *Succineidae* in habitats suitable for Magazine Mountain shagreen may predict its occurrence despite negative survey results.

Caldwell *et al.* (2009, pp. 15–16) presented the only information on life history and reproductive biology for Magazine Mountain shagreen (see Recovery section below).

They also presented the first report on food habits for Magazine Mountain shagreen (Caldwell *et al.* 2009, p. 16). Magazine Mountain shagreen has generalist feeding habits (able to utilize many food sources) similar to other land snails in its taxonomic family, Polygyridae (Blinn 1963, pp. 501–502; Foster 1936, pp. 26–31; Dourson 2008, pp. 155–156; Caldwell *et al.* 2009, p. 16). Therefore, the species is not limited by a dependence on one or a few food sources (Caldwell *et al.* 2009, p. 16).

Prolonged drought or concomitant warming of temperatures could adversely affect this species by compromising nesting sites, egg masses, and surface feeding (Caldwell *et al.* 2009, p. 15). However, there is no data to establish that such effects are reasonably certain to occur. Additional details on habitat requirements were provided in the proposed delisting rule (77 FR 36461).

Summary of Comments and Recommendations

In the proposed rule published on June 19, 2012 (77 FR 36460), we requested that all interested parties submit written comments on the proposal by August 20, 2012. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. A newspaper notice inviting general public comment was published in the *Arkansas Democrat Gazette*. We did not receive any requests for a public hearing, so none was conducted.

Peer Review

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from three knowledgeable individuals with scientific expertise that included familiarity with the Magazine Mountain shagreen and its habitat, biological needs, and threats. We received responses from all three peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding the delisting of Magazine Mountain shagreen. The peer reviewers generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve the final rule. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Reviewer Comments

(1) *Comment:* One peer reviewer suggested that Mount Magazine State Park highlight this species for its rarity, biology, and as a management success story with cooperation between the Service, USFS, and ADPT.

Our Response: The USFS and ADPT currently highlight this species via visitor center displays and park naturalist presentations. The Service will continue to work with the State and USFS during post-delisting monitoring activities to manage Magazine Mountain shagreen and its habitat.

(2) *Comment:* One peer reviewer stated that no population data are available. The peer reviewer stated that pre- and post-listing personal observations indicate

population stability. The reviewer also discussed the natural threat of fire to more vulnerable clutch sites and juveniles.

Our Response: The Service agrees that no data are available to estimate population size for this species, and due to the species' rupicolous (living or growing among rocks) nature, mark-recapture monitoring techniques used to estimate population size would be highly ineffective and cause unnecessary habitat destruction. Therefore, mark-recapture sampling techniques have not been used with this species and will not be utilized during post-delisting monitoring.

The Service acknowledged and discussed the threat of fire to Magazine Mountain shagreen in the proposed delisting rule (77 FR 36462 and 36472). The USFS provides buffers around Magazine Mountain shagreen habitats during prescribed burns, and restricts burning to nonreproductive periods and pre-leaf-fall to ensure adequate leaf litter for the following spring reproductive period. The USFS's prescribed fire program and its associated timing and frequency reduces the likelihood of catastrophic wild fires.

(3) *Comment:* One peer reviewer stated that the post-delisting monitoring program was well thought out but suggested adding a university partner.

Our Response: The Service, USFS, and State have incorporated a university partner into the post-delisting monitoring plan.

(4) *Comment:* One peer reviewer questioned whether natural gas exploration and extraction on Magazine Mountain would affect Magazine Mountain shagreen.

Our Response: The USFS has designated Magazine Mountain as a Special Interest Area. This designation does not allow for surface occupancy of natural gas infrastructure. Although the USFS has leased mineral rights to Magazine Mountain, all

natural gas extraction would occur using horizontal directional drilling techniques from locations outside the designated Special Interest Area. For this reason, the Service determined that natural gas exploration is not a threat to Magazine Mountain shagreen.

(5) *Comment:* Two peer reviewers questioned whether HOBO® data loggers were the only type of temperature and relative humidity data loggers that could be used during post-delisting monitoring.

Our Response: We acknowledge in the post-delisting monitoring plan that HOBO® or similar type data loggers can be used for collecting air and relative humidity data.

(6) *Comment:* One peer reviewer suggested that post-delisting monitoring should occur only during daylight hours for safety reasons.

Our Response: We acknowledge that night surveys are not practical due to safety concerns. We clarify in the post-delisting monitoring plan that day surveys must be conducted in the early morning with ambient temperatures approximately 64 °F (17.8 °C) and a relative humidity of 80 percent or greater. Monitoring will not be conducted when ambient air temperature is less than or equal to 55 °F (12.7 °C).

Comments from States

Section 4(b)(5)(A)(ii) of the Act states that the Secretary must give actual notice of a proposed regulation under Section 4(a) to the State agency in each State in which the species is believed to occur, and invite the comments of such agency. Section 4(i) of the Act states, “the Secretary shall submit to the State agency a written justification for his

failure to adopt regulations consistent with the agency’s comments or petition.” The Service submitted the proposed regulation to the State of Arkansas but received no formal comments from the State regarding the proposal.

Public Comments

No public comments were received for the proposal to delist the Magazine Mountain shagreen.

Summary of Changes from Proposed Rule

1. In the **Species Information** section above, we clarify that the USFS owns the summit of Magazine Mountain, and that the ADPT has a long-term special use permit to operate the State park on the summit.

2. In the **Recovery Action 1** section below, we clarify that the USFS designation of Magazine Mountain as a Special Interest Area also prohibits surface occupancy of natural gas infrastructure.

3. In the **Recovery Action 2** section below, we add the USFS Magazine Mountain shagreen population monitoring data from 2012.

4. In the **Recovery Action 4** section below, we clarify that sampling techniques (e.g., mark–recapture) used to estimate population size for Magazine Mountain shagreen would be ineffective due to the species’ rupicolous nature and, therefore, would likely result in unnecessary habitat disturbance.

Recovery

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Recovery planning includes the development of a recovery outline shortly after a species is listed, and preparation of a draft and final recovery plan. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new, substantive information becomes available. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that set a trigger for review of the species' status, and methods for monitoring recovery progress.

Recovery plans are not regulatory documents and are instead intended to establish goals for long-term conservation of listed species, define criteria that are designed to indicate when the threats facing a species have been removed or reduced to such an extent that the species may no longer need the protections of the Act, and provide guidance to our Federal, State, other governmental and nongovernmental partners on methods to minimize threats to listed species. There are many paths to accomplishing recovery of a species, and recovery may be achieved without all criteria being fully met. For example, one or more criteria may be exceeded while other criteria may not yet be accomplished. In that instance, we may determine that the threats are minimized

sufficiently and the species is robust enough to delist. In other cases, recovery opportunities may be discovered that were not known when the recovery plan was finalized. These opportunities may be used instead of methods identified in the recovery plan. Likewise, new information on the species may lead to changes in the criteria. Recovery of a species is a dynamic process requiring adaptive management that may, or may not, fully follow the guidance provided in a recovery plan.

The Magazine Mountain shagreen Recovery Plan was approved by the Service on February 1, 1994 (Service 1994, 12 pp.). The recovery plan includes the following delisting criteria:

1. Magazine Mountain shagreen will be considered recovered when long-term protection of its habitat is achieved; and
2. It is determined from 10 years of data that the snail population is stable or increasing.

Long-term protection of habitat will be achieved when a memorandum of understanding (MOU) between the USFS and the Service is developed and implemented. The MOU must delineate measures protecting the species and its habitat, must be continuous in effect, and must require a minimum 2-year written notification prior to cancellation by either party. Criteria for determining what constitutes a stable population were to be determined through implementation of recovery actions (Service 1994, p. 6). Through implementation of these actions, the criteria chosen as the most appropriate for determining a stable population were persistence over time (shown by the number of Magazine Mountain shagreen individuals collected annually), annual catch per unit effort, and size, quality, and stability of habitat.

The recovery plan outlines six primary recovery actions to meet the recovery criteria described above and, therefore, address threats to the species. The six recovery actions for delisting Magazine Mountain shagreen have been met, as described below. Additionally, the level of protection currently afforded to the species and its habitat and the current status of threats are outlined in the **Summary of Factors Affecting the Species** section below.

Recovery Action 1: Provide long-term protection for Magazine Mountain shagreen through a memorandum of understanding (MOU) between the USFS and the Service to protect habitat.

To meet the recovery criterion to provide long-term habitat protection for Magazine Mountain shagreen, in 2005, the Service, USFS Ozark-St. Francis National Forest, and ADPT entered into a MOU that provides for long-term cooperation in the management and protection of the species and its habitat on Magazine Mountain. The MOU is a continuing agreement without a designated termination date.

In 1987, the USFS designated Magazine Mountain, including the entire range of Magazine Mountain shagreen, as a Special Interest Area (Whalen 2013, pers. comm.). The USFS expanded the original Special Interest Area to include areas at lower elevations in the 2005 Revised Land Resource Management Plan (USFS 2005, p. 2–43). In 2007, the USFS developed a new management plan for the Special Interest Area that provided additional protection to Magazine Mountain shagreen from prescribed fires (USFS 2007, p. 10). Including additional protections provided through the 2007

management plan, the Special Interest Area designation prohibits timber harvest, prescribed burning from leaf fall until the end of Magazine Mountain shagreen's reproductive period, application of aerial fire retardant, road construction, surface occupancy of natural gas infrastructure and other surface-disturbing activities associated with mineral extraction, and recreational development on talus slopes.

Through development and implementation of the MOU and protections provided through the Special Interest Area designation, we consider this action complete.

Recovery Action 2: Determine and monitor population parameters, including mapping and monitoring the distribution of Magazine Mountain shagreen and its habitat and designing and implementing a standard survey procedure.

Surveys: In developing the monitoring strategy for Magazine Mountain shagreen, 10 specific sampling stations were established in 1996; these sampling stations later served as the long-term monitoring locations for the USFS. Each station was marked with permanent markers so that later annual monitoring effort could be repeated at the exact location (Robison 1996, p. 6). The survey protocol uses visual encounter searches (VES) to determine, map, and monitor Magazine Mountain shagreen population parameters and habitat (Robison 1996, pp. 7–24). VES involves field personnel walking through an area or habitat for a prescribed time period systematically searching for animals and has been used effectively with amphibians in habitats that are widely spaced, such as the talus slopes that Magazine Mountain shagreen inhabits (Crump and Scott 1994 in Robison 1996, pp. 8–9). The assumption of VES is that the shorter duration in

time to encounter an animal, the more common and abundant the animal is at any particular site (Robison 1997, p. 7).

Historical surveys (pre-1996; Pilsbry and Ferriss 1906, Caldwell 1986) for Magazine Mountain shagreen did not report population estimates or catch per unit effort (number of snails collected per time period spent surveying). More recent surveys (since 1996; see discussion and Tables 1, 2, and 3 below) have reported catch per unit effort but did not estimate population size. Since historical collections did not report the same information as more recent collections, a comparative analysis is not possible.

In 1996, two surveys were conducted for Magazine Mountain shagreen at each of the 10 USFS sampling stations (Table 1; Robison 1996, pp. 17–20). Using VES, live Magazine Mountain shagreen were found at four sampling stations during the period May 24–27, 1996, and four stations during June 6–8, 1996 (Table 1; Robison 1996, p. 19). At all sites, dead Magazine Mountain shagreen shells were encountered before live individuals were discovered (Table 1). A third survey was conducted by Robison in May 1997 (Table 1; Robison 1997, pp. 16–17). Live individuals and dead shells were found at four and five sampling stations, respectively (Table 1).

The USFS conducted Magazine Mountain shagreen population monitoring from 1998 through 2012 using the same sampling protocols and 10 stations established by Robison (1996). Station 10 was dropped from surveys in 2002, with Service approval, as no live or dead Magazine Mountain shagreen had been collected at this station during any previous surveys. However, surveys at Station 10 began again in 2012. One person-hour (60 minutes) per station was spent searching for Magazine Mountain shagreen for all

survey years (1998–2012, except during 2000, when no surveys were conducted, and during 2007, when three stations were not sampled).

Table 1. Results of timed searches conducted in 1996 and 1997 at 10 Magazine Mountain shagreen (MMS) monitoring stations on Magazine Mountain, Logan County, Arkansas (Robison 1996, pp. 33–35; Robison 1997, pp. 16–17). Time is reported in minutes to first encounter. The number of individuals collected is for a 60-minute search period or number of individuals per hour at each station (catch per unit effort).

Station	Dead MMS Shell						Live MMS					
	24–27 May 1996		6–8 June 1996		19–20 May 1997		24–27 May 1996		6–8 June 1996		19–20 May 1997	
	Number	Time (min)	Number	Time (min)	Number	Time (min)	Number	Time (min)	Number	Time (min)	Number	Time (min)
1	0	0	0	0	0	0	0	0	0	0	0	0
2	1	11	1	10	0	0	0	0	0	0	0	0
3	5	6	0	0	3	8	3	7	0	0	2	13
4	3	5	2	7	1	9	0	0	0	0	0	0
5	3	16	4	12	2	17	2	18	2	18	1	30
6	2	4	1	9	4	8	2	12	1	10	1	19
7	2	12	2	6	1	14	0	0	1	9	1	46
8	3	4	2	7	0	0	1	9	2	13	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
Total # of individuals or shells	19	-----	12	-----	11	-----	8	-----	6	-----	5	-----
Average time to encounter	-----	8.3	-----	8.5	-----	11.2	-----	11.5	-----	12.5	-----	27

The number of live and dead Magazine Mountain shagreen collected at each station during the period 1998–2012 are shown in Table 2. The amount of time (minutes) that elapsed until the first encounter of live and dead Magazine Mountain shagreen at each station during the period 1998–2012 surveys is shown in Table 3.

Overall, the number of live Magazine Mountain shagreen individuals collected annually from 1996–2012 indicates the species is persisting over time. Annual fluctuation in numbers of live Magazine Mountain shagreen individuals collected is likely attributable to climatic or temporal conditions or both (Tables 1, 2, and 3) because the snails are more active during times of high humidity and cooler temperatures (USFS 2009, pp. 1, 4–5).

The number of dead Magazine Mountain shagreen individuals collected annually from 1996–2012 has shown greater annual fluctuation than the number of live individuals (Tables 1, 2, and 3). A closely related species, shagreen (*Inflectarius inflectus*), is slightly smaller than Magazine Mountain shagreen with a “greater diameter” ranging from 0.37 (9.5 mm) to 0.44 in. (11.3 mm) (mean = 0.43 in. (10.9 mm)) compared to 0.50 (12.7 mm) to 0.55 in. (14.0 mm) (mean = 0.52 in. (13.3 mm)) for Magazine Mountain shagreen (Caldwell *et al.* 2009, p. 2). However, individuals of shagreen (*Inflectarius inflectus*), on which aperture (the main opening of the snail’s shell) teeth are reduced, look very similar to Magazine Mountain shagreen. Therefore, accurate identification of dead Magazine Mountain shagreen, and to a much lesser extent live individuals, may be easily confused with the more common and abundant shagreen depending on surveyor experience, which has been variable during the 17-year monitoring period.

Table 2. Number of individuals located during 60-minute search periods at 10 Magazine Mountain shagreen (MMS) monitoring stations on Magazine Mountain, Logan County, Arkansas, from 1998 to 2012 (USFS unpublished data sheets 1999–2012, USFS 2009). The number of individuals collected is for a 60-minute search period or number of individuals per hour at each station (catch per unit effort). D = dead shells; L = live snails; NS = not sampled; NR = not recorded; DM = data missing from USFS files.

Station	Dead(D) or Live (L)	Year															
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	1998– 2012
1	D	0	0	NS	1	0	0	0	0	0	NR	0	0	0	0	0	1
	L	0	1	NS	0	2	0	1	2	0	2	0	0	0	0	0	8
2	D	0	1	NS	0	0	0	0	2	DM	NR	0	0	0	0	0	3
	L	0	0	NS	0	0	0	1	0	DM	2	0	0	0	0	0	3
3	D	0	0	NS	1	0	0	0	0	0	NS	0	0	0	0	0	1
	L	0	0	NS	0	0	0	0	0	0	NS	0	0	0	0	0	0
4	D	2	1	NS	2	0	1	1	0	0	NR	1	1	1	0	0	10
	L	1	0	NS	0	0	0	0	0	0	1	2	0	0	0	0	4
5	D	0	0	NS	1	1	1	3	0	0	NS	1	3	5	0	0	15
	L	1	1	NS	1	0	0	3	3	2	NS	3	0	0	1	0	15
6	D	2	0	NS	3	0	0	4	NR	0	NR	0	1	4	0	3	17
	L	2	0	NS	2	0	2	3	4	1	1	0	0	0	0	1	16
7	D	4	0	NS	0	0	0	1	0	DM	0	0	0	1	0	0	6
	L	0	0	NS	0	0	0	0	2	DM	1	0	0	0	3	0	6
8	D	0	0	NS	0	0	1	0	0	0	NS	1	1	2	0	0	5
	L	0	0	NS	0	0	0	1	2	0	NS	1	0	0	0	0	5

9	D	0	0	NS	0	0	0	0	0	0	NR	0	0	0	0	0	0
	L	0	0	NS	0	2	0	0	0	1	1	0	0	0	0	0	4
10	D	0	0	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0	0
	L	0	0	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0	0
Totals	D	8	2	NS	8	1	3	9	2	0	NR/NS	3	6	13	0	3	58
	L	4	2	NS	3	4	2	9	13	4	8	6	0	0	4	1	60
	D + L	12	4	NS	11	5	5	18	15	4	8	9	6	13	4	4	118

Table 3. Minutes to first encounter of Magazine Mountain shagreen individual. Results of timed searches conducted by the USFS at 10 Magazine Mountain shagreen (MMS) monitoring stations on Magazine Mountain, Logan County, Arkansas, from 1998 to 2012 (USFS unpublished data sheets 1999–2012, USFS 2009). Numbers reported are for time (minutes) to first encounter of a dead shell or live snail. Timed searches were conducted for 60 minutes at each station in each year, except where otherwise indicated. D = dead shells; L = live snails; NS = not sampled; NR = not recorded; DM = data missing from USFS files.

Station	Dead(D) or Live (L)	Year														
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	D	0	0	NS	30	0	0	0	0	0	NR	0	0	0	0	0
	L	0	11	NS	0	8	0	10	1	0	16	0	0	0	0	0
2	D	0	42	NS	0	0	0	0	10	DM	59	0	0	0	0	0
	L	0	0	NS	0	0	0	37	0	DM	44	0	0	0	0	0
3	D	0	0	NS	42	0	0	0	0	0	NS	0	0	0	0	0
	L	0	0	NS	0	0	0	0	0	0	NS	0	0	0	0	0
4	D	12	1	NS	52	0	14	15	0	0	NR	55	55	20	0	0
	L	18	0	NS	0	0	0	0	0	0	50	30	0	0	0	0
5	D	0	0	NS	12	2	1	30	0	0	NS	1	8	50	0	0
	L	36	27	NS	2	0	0	32	13	21	NS	30	0	0	60	0
6	D	45	0	NS	8	0	0	26	6	0	NR	0	42	3	0	NR
	L	16	0	NS	2	0	10	26	10	19	1	0	0	0	0	NR
7	D	53	0	NS	0	0	0	31	0	DM	0	0	0	29	0	0
	L	0	0	NS	0	0	0	0	3	DM	11	0	0	0	20	0
8	D	0	0	NS	0	0	6	0	0	0	NS	55	50	12	0	0
	L	0	0	NS	0	0	0	32	1	0	NS	50	0	0	0	0

9	D	0	0	NS	0	0	0	0	0	0	NR	0	0	0	0	0
	L	0	0	NS	0	1	0	0	0	18	7	0	0	0	0	0
10	D	0	0	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0
	L	0	0	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0
Average Time to Encounter	D	37	22	NS	29	2	7	26	8	0	59	37	39	29	0	0
	L	23	19	NS	2	5	10	27	6	19	22	37	0	0	40	0

Numerous problems occur with sampling populations of terrestrial snails, including their rupicolous nature (living or growing on or among rocks), which makes it difficult to locate individuals during surveys; effects of climate variables (*e.g.*, temperature and humidity) on snail activity; and practicality of surveys for nocturnal species such as Magazine Mountain shagreen (Newell 1971 and Bishop 1977 in Robison 1996, p. 7). Surveys are optimally conducted at night in late April to early May, dependent upon the onset of spring (moister conditions at the surface, emergence of oak catkins, temperature) (Caldwell *et al.* 2009, p. 17). A rise in relative humidity and drop in temperature usually causes land snails to become more active (Burch and Pearce 1990 in Robinson 1996, p. 7). Therefore, climatic and temporal variation may explain variation in number of live specimens collected from one survey to the next.

Population size, density, and age structure cannot be reliably estimated for a rupicolous species that spends most of the year deep within the talus slopes of Magazine Mountain (Caldwell *et al.* 2009, p. 4). Therefore, these population parameters were not estimated.

Habitat mapping: All talus habitats inhabited by Magazine Mountain shagreen were assessed and spatially mapped in 2007–2008 (see **Species Information**; Caldwell *et al.* 2009, pp. 23–31). According to that assessment, the total amount of available habitat for Magazine Mountain shagreen consists of approximately 21.6 ac (8.75 ha) at 27 talus habitats on Magazine Mountain’s west and north slopes (Caldwell *et al.* 2009, pp. 4–5). The only other habitat assessment for Magazine Mountain shagreen was conducted in 1986, during a comprehensive status review (Caldwell 1986). In 1986, total habitat

available to the species was estimated at 540 ac (218.5 ha). No habitat loss has occurred since 1986, but rather more advanced technology using global positioning satellite mapping of talus habitat and detailed analysis of vegetative communities and climatic variables provided a more accurate assessment of the species' habitat.

Summary of Recovery Action 2: As specified in the recovery plan and discussed above, Robison (1996) developed a standardized monitoring strategy for the USFS, and using that strategy, Magazine Mountain shagreen populations have been monitored annually since 1996. Despite variable climatic and temporal conditions preceding annual population monitoring, 18 years of monitoring data appear to indicate a stable Magazine Mountain shagreen population (Tables 1, 2, and 3), as shown by the species' persistence over time and stability of habitat. Surveys conducted by Caldwell *et al.* (2009) from 2007–2008 reaffirmed USFS monitoring results. In addition, as discussed above, all talus habitats inhabited by Magazine Mountain shagreen were mapped. Therefore, we consider this recovery action complete.

Recovery Action 3: Develop life-history and habitat parameters.

The first life-history and ecology information for Magazine Mountain shagreen, including information on habitat (geology and forest community), associations with other land snails, food habits, activity periods, breeding, egg deposition and hatching times, growth rates, and limiting factors, was provided in 2009 as a result of surveys conducted by Caldwell *et al.* (2009).

Magazine Mountain shagreen prefers moist woods with some noteworthy differences in the tree and shrub communities present on the north and south slopes of Magazine Mountain (Caldwell *et al.* 2009). Trees such as American linden (*Tilia americana*), sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), and prickly gooseberry (*Ribes cynosbati*) were found only on the north slopes of Magazine Mountain (Caldwell *et al.* 2009, pp. 6–11). Similar associations with land snails are discussed in the **Species Information** section.

Caldwell *et al.* (2009, p. 16) suspected that Magazine Mountain shagreen lays eggs only during early spring (late April to early May), and egg-laying is triggered by spring rains. In the second week of May 2007, concurrent with spring rain, Caldwell *et al.* (2009, p. 15–16) located Magazine Mountain shagreen egg masses in the leaf litter covering the talus. Temperatures of the substrate and rock were 63.7 and 64.2 °F (17.6 and 17.9 °C), respectively. See the proposed delisting rule for additional details on egg masses (77 FR 36461).

As discussed above, Caldwell *et al.* (2009) provide the first life-history and ecology information for Magazine Mountain shagreen. Therefore, we consider this action complete.

Recovery Action 4: Determine the parameters of a stable population.

Due to the rupicolous nature of Magazine Mountain shagreen, it is not possible, and therefore would be ineffective and result in unnecessary habitat disturbance, to

estimate population size or age structure. The size and quality of habitat available to Magazine Mountain shagreen was defined by Caldwell *et al.* (2009, p. 4) (see **Species Information**). While this estimate is substantially less than Caldwell's previous estimate (1986; see **Species Information**), it represents a much more rigorous analysis of available habitat using geospatial mapping software to map habitat based on geology, forest community, and species survey data. In addition, monitoring data collected since 1996 by Robison (1996, 1997), USFS (1998–2012), and Caldwell *et al.* (2009) show that the species is persisting over time despite low numbers of live/dead Magazine Mountain shagreen observed annually (see Tables 1, 2, and 3). Finally, permanent protection and management of habitat supporting Magazine Mountain shagreen on Magazine Mountain indicate that populations are secure and should remain self-sustaining for the foreseeable future. Therefore, we consider this action complete.

Recovery Action 5: Conduct surveys of potential habitat in the vicinity of Magazine Mountain.

Magazine Mountain shagreen surveys have been conducted in similar talus habitats near Magazine Mountain (Caldwell *et al.* 2009, pp. 2–6) in the Arkansas River Valley and areas north of the Arkansas River. Mount Nebo and Petit Jean Mountain were chosen for more intensive surveys in 2007 and 2008. The maximum elevation of Petit Jean Mountain (1,180 ft or 359.7 m) and Mount Nebo (1,755 ft or 534.9 m) is less than the minimum elevation (2,200 ft or 670.6 m) of talus habitat occupied by Magazine

Mountain shagreen at Magazine Mountain. Mean average rainfall at the summit of Magazine Mountain is 55 in. (139.7 cm), approximately 5 in. (12.7 cm) greater than lower elevations (Service 1994, p. 3). Forest communities of Mount Nebo more closely resemble the south slope of Magazine Mountain, which is not inhabited by Magazine Mountain shagreen. The unique combination of biotic and abiotic factors found on Magazine Mountain provide the requisite habitat for the endemic Magazine Mountain shagreen (Caldwell *et al.* 2009, pp. 4–6). Because surveys of potential habitat near Magazine Mountain have been conducted, we consider this action complete.

Recovery Action 6: Develop a monitoring plan to ensure recovery has been achieved.

In conjunction with this rule, we have developed a post-delisting monitoring plan (see **Post-Delisting Monitoring** section below) that includes information on distribution, habitat requirements, and life history of Magazine Mountain shagreen and a monitoring protocol provided by Caldwell *et al.* (2009, pp. 17–18). Therefore, we consider this action complete.

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. “Species” is defined by the Act as including any species or subspecies of fish or

wildlife or plants, and any distinct vertebrate population segment of fish or wildlife that interbreeds when mature (16 U.S.C. 1532(16)). A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or humanmade factors affecting its continued existence. We must consider these same five factors in delisting a species. We may delist a species according to 50 CFR 424.11(d) if the best available scientific and commercial data indicate that the species is neither endangered nor threatened for the following reasons: (1) the species is extinct; (2) the species has recovered and is no longer endangered or threatened (as is the case with the Magazine Mountain shagreen); and/or (3) the original scientific data used at the time the species was classified were in error.

A recovered species is one that no longer meets the Act's definition of threatened or endangered. Determining whether a species is recovered requires consideration of the same five categories of threats specified in section 4(a)(1) of the Act. For species that are already listed as threatened or endangered, this analysis of threats is an evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following the delisting or downlisting and the removal or reduction of the Act's protections.

A species is "endangered" for purposes of the Act if it is in danger of extinction

throughout all or a “significant portion of its range” and is “threatened” if it is likely to become endangered within the foreseeable future throughout all or a “significant portion of its range.” The word “range” in the significant portion of its range (SPR) phrase refers to the range in which the species currently exists. For the purposes of this analysis, we will evaluate whether the currently listed species, the Magazine Mountain shagreen should be considered threatened or endangered. Then we will consider whether there are any portions of the Magazine Mountain shagreen range in danger of extinction or likely to become endangered within the foreseeable future.

The following analysis examines all five factors currently affecting, or that are likely to affect, the Magazine Mountain shagreen within the foreseeable future. In making this final determination, we have considered all scientific and commercial information available, which includes monitoring data collected from 1996 to 2012 (Robison 1996, USFS 2009, USFS 1999–2012 unpublished data) and life-history and habitat information (Caldwell *et al.* 2009).

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The 1989 final rule to list Magazine Mountain shagreen as threatened (54 FR 15206) identified the following habitat threats: Possible negative effects from USFS use of the land, a military proposal that would bring troop training exercises and heavy equipment into the species’ habitat, and the development of a new State park and lodge

on Magazine Mountain.

The 1989 final listing rule cited the species' restricted range as its greatest vulnerability to land use change or activity that would modify the talus slopes inhabited by the species. A request from the ADPT for a special use permit from the USFS to develop a State park and the associated construction of buildings, roads, trails, pipelines, and recreational activities had the potential to adversely affect Magazine Mountain shagreen and its habitat if talus slopes were disturbed. In 1993, several agencies, including the Service, contributed to an environmental impact statement (EIS) for the development and construction of a State park on the summit of Magazine Mountain (Service 1994, p. 5). Of the five assessed alternatives, the selected alternative included construction of facilities on the south slopes, improvement of existing camping and picnic facilities on the north slopes, additional hiking trails, and a reconstructed homestead. However, it was determined that, with appropriate management, the selected alternative would not adversely affect Magazine Mountain shagreen. Furthermore, mitigation measures completed as part of the park development and maintenance that helped minimize potential adverse effects to Magazine Mountain shagreen and its habitat included development of a revegetation/erosion/sediment control plan, monitoring of sensitive species habitats, and reduction of foot traffic along bluff lines and rock outcrops. Therefore, development of the State park and its associated recreational and maintenance activities no longer poses a threat to the survival of Magazine Mountain shagreen.

Since the final listing rule was published, the USFS Ozark-St. Francis National

Forests designated areas downslope (at lower elevations) of Magazine Mountain shagreen habitat as part of the Mount Magazine Special Interest Area. This designation still encompasses all of the known range of Magazine Mountain shagreen plus a 600-ft (182.9-m) contour interval buffer. The Special Interest Area designation and its associated management plan, revised in 2007, also protects the area from land management practices that might be detrimental to Magazine Mountain shagreen and its habitat (USFS 2007). In 2005, the Service, USFS Ozark-St. Francis National Forests, and ADPT entered into a MOU that provides for long-term cooperation in the management and protection of Magazine Mountain shagreen and its habitat on Magazine Mountain. The MOU is a continuing agreement without a designated termination date. Therefore, USFS land use activities no longer pose a threat to the survival of Magazine Mountain shagreen.

Wildfires have been cited as the single greatest threat to Magazine Mountain shagreen (Caldwell *et al.* 2009, p. 18). The USFS's prescribed fire program and its associated timing and frequency will reduce the likelihood of catastrophic wildfires. The prescribed fire program also provides a buffer around Magazine Mountain shagreen habitat. The ADPT restricts campfires and open flame cooking to designated areas to minimize the potential for wildfires that may potentially threaten Magazine Mountain shagreen and its habitat, as well as State park buildings and structures.

The U.S. Army is no longer considering the use of Magazine Mountain for military training exercises, an activity that was considered an imminent threat to Magazine Mountain shagreen when it was listed. The U.S. Army has no plans to conduct

military training exercises on Magazine Mountain in the foreseeable future and withdrew its previous consideration after Magazine Mountain shagreen was listed as threatened in 1989 (Service 1994, p. 5). Therefore, potential U.S. Army military training operations no longer pose a threat to the survival of Magazine Mountain shagreen.

Summary of Factor A: Through management agreements and special designations, habitat supporting Magazine Mountain shagreen on Magazine Mountain is secure, and will remain permanently protected and managed for talus habitat. Therefore, we find that the present or threatened destruction, modification, or curtailment of its habitat or range is no longer a threat to Magazine Mountain shagreen.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The final rule to list Magazine Mountain shagreen identified overutilization as a potential threat. A knowledgeable collector could adversely affect the population by removing large numbers of individuals. However, to the Service's knowledge, no Magazine Mountain shagreen individuals have been removed from the population for commercial, recreational, scientific, or educational purposes since the species was listed in 1989, except by Caldwell *et al.* (2009), who were permitted through a section 10(a)(1)(A) research permit to remove an egg mass from the wild to learn more about the life history of Magazine Mountain shagreen. The Arkansas Game and Fish Commission (AGFC) requires a permit for collection of individuals for scientific and educational

purposes. Recreational collection is not permitted. Likewise, ADPT requires a permit for collection of plants and animals within State park boundaries. The State Park falls within the area designated as a Special Interest Area, and collection and removal of plants and non-game animals is by USFS permit only in the Special Interest Area. There is no commercial market for Magazine Mountain shagreen, nor is there likely to be a commercial market in the foreseeable future. Moreover, all habitat for this species is protected by one or more management agencies which require permits for collection.

It is the Service's opinion that, due to the species' restricted range, the AGFC's and ADPT's permitting requirements and restrictions will provide sufficient protection to Magazine Mountain shagreen following delisting.

Summary of Factor B: Magazine Mountain shagreen is not sought after for commercial purposes, and recreational collection of animals and plants within Magazine Mountain State Park is prohibited. The AGFC requires a scientific collection permit for scientific, recreational, and educational purposes, and it is the Service's opinion that it is very unlikely that AGFC would permit any activity that would result in overutilization of Magazine Mountain shagreen. Therefore, we find that overutilization for commercial, recreational, scientific, or educational purposes is no longer a threat to Magazine Mountain shagreen and will not become a threat in the foreseeable future.

Factor C. Disease or Predation

The 1989 listing rule for Magazine Mountain shagreen (54 FR 15206) did not list

any threats to the species from disease or predation. The best available science does not provide any evidence that either of these factors has become a threat to this species since it was listed in 1989, nor will either become a threat in the foreseeable future. Therefore, we find that disease and predation are not threats to Magazine Mountain shagreen.

Factor D. The Inadequacy of Existing Regulatory Mechanisms

The 1989 final rule to list Magazine Mountain shagreen (54 FR 15206) indicated that no protections other than the USFS Special Interest Area existed to protect Magazine Mountain shagreen and its habitat. The entire range of Magazine Mountain shagreen is on USFS property and the summit of Magazine Mountain is jointly managed by ADPT as a State Park. Collection of animals is prohibited in the State Park and Special Interest Area, and there is no indication that this prohibition is not effective in preventing collection of this species. Collection of plants and non-game animals is by USFS permit only in the Special Interest Area. In 2005, the Service, USFS Ozark-St. Francis National Forests, and ADPT entered into an MOU that provides for long-term cooperation in the management and protection of Magazine Mountain shagreen and its habitat on Magazine Mountain. The MOU is a continuing agreement without a designated termination date.

Summary of Factor D: We believe that the protected status of the lands where Magazine Mountain shagreen currently exists will continue to provide adequate regulatory protection for this species. Therefore, we find that inadequacy of existing regulatory mechanisms is no longer a threat to Magazine Mountain shagreen.

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

The 1989 final listing rule for Magazine Mountain shagreen (54 FR 15206) identified the restricted range (Magazine Mountain), temperature, and moisture as potential stressors to Magazine Mountain shagreen. Magazine Mountain shagreen inhabits 27 talus habitats on the north and west slopes of Magazine Mountain, Logan County, Arkansas. Populations occur in the vegetated and leaf litter covered portion of talus rock between 2,200 ft (670.6 m) and 2,600 ft (792.5 m). This species continues to occupy a restricted range, however, as a result of habitat protection provided by the USFS and ADPT (see analysis under Factors A and D above), the vulnerability associated with restricted range has been reduced..

The Intergovernmental Panel on Climate Change (IPCC) concluded that evidence of warming of the climate system is unequivocal (IPCC 2007a, p. 30). Numerous long-term climate changes have been observed, including changes in arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves, and the intensity of tropical cyclones (IPCC 2007b, p. 7). While continued change is certain, the magnitude and rate of change is unknown in many cases. Species that are dependent on specialized habitat types, limited in distribution, or that have become restricted to the extreme periphery of their range will be most susceptible to the effects of climate change.

Estimates of the effects of climate change using available climate models lack the

geographic precision needed to predict the magnitude of effects at a scale small enough to discretely apply to the range of Magazine Mountain shagreen. However, data on recent trends and predicted changes for the Southeast United States (Karl *et al.* 2009, pp. 111–116) provide some insight for evaluating the potential threat of climate change to Magazine Mountain shagreen. Since 1970, the average annual temperature of the region has increased by about 2 °F (1.1 °C), with the greatest increases occurring during winter months. The geographic extent of areas in the Southeast region affected by moderate to severe spring and summer drought has increased over the past three decades by 12 and 14 percent, respectively (Karl *et al.* 2009, p. 111). These trends are expected to increase.

Rates of warming are predicted to more than double in comparison to what the Southeast has experienced since 1975, with the greatest increases projected for summer months. Depending on the emissions scenario used for modeling change, average temperatures are expected to increase by 4.5 °F to 9 °F (2.5 °C to 5 °C) by the 2080s (Karl *et al.* 2009, pp. 111). While there is considerable variability in rainfall predictions throughout the region, increases in evaporation of moisture from soils and loss of water by plants in response to warmer temperatures are expected to contribute to the effect of these droughts (Karl *et al.* 2009, pp. 112).

Since Magazine Mountain shagreen prefers cool, moist microhabitats, prolonged drought and concomitant warming of temperatures could adversely affect the species. In particular, nesting sites and egg masses may be affected (Caldwell *et al.* 2009, p. 15). However, no data exist to establish that such effects are reasonably certain to occur. In addition, the species possesses biological traits that may provide resilience to this

potential threat. For example, Magazine Mountain shagreen tends to retreat into the talus slopes during dry periods. Egg masses were discovered in 2007 in the leaf litter covering the talus (Caldwell *et al.* 2009, p. 15–16); this tendency for Magazine Mountain shagreen to lay eggs in the leaf litter likely helps protect egg masses from desiccation (drying out).

We are not aware of any climate change information specific to the habits or habitat (i.e., talus slopes) of the Magazine Mountain shagreen that would indicate what potential effects climate change and increasing temperatures may have on this species. Therefore, based on the best available information, we do not have any evidence to determine or conclude that climate change is a threat to Magazine Mountain shagreen now or within the foreseeable future.

Summary of Factor E: At this time, we do not have sufficient information to document that climate changes observed to date had or will have any adverse effect on Magazine Mountain shagreen or its habitat. Therefore, we find that the other natural or manmade factors considered here do not pose a threat to Magazine Mountain shagreen, nor are they likely to be threats in the foreseeable future. Post-delisting monitoring will also afford an opportunity to monitor the status of the species and the impacts of any natural events that may occur for 5 years.

Summary of Factors

The primary factors that threatened Magazine Mountain shagreen at the time of listing were: the present or threatened destruction, modification, or curtailment of its

habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; the inadequacy of existing regulatory mechanisms; and other natural or humanmade factors affecting its continued existence. Based on the analysis above, these factors have been removed or ameliorated.

Determination

We have carefully assessed the best scientific and commercial information available regarding the threats faced by Magazine Mountain shagreen in developing this rule. Based on the five-factor analysis above, Magazine Mountain shagreen does not currently meet the Act's definition of endangered in that it is not in danger of extinction throughout all of its range, or the definition of threatened in that it is not likely to become endangered in the foreseeable future throughout all of its range.

Significant Portion of the Range Analysis

Having determined that Magazine Mountain shagreen does not meet the definition of endangered or threatened throughout its range, we must next consider whether there are any significant portions of its range that are in danger of extinction or likely to become endangered.

Applying the process described in the proposed rule (see 77 FR 36473–36475), we evaluated the range of Magazine Mountain shagreen to determine if any area could be

considered a significant portion of its range. As discussed in the proposed rule, a portion of a species' range is significant if it is part of the current range of the species and is important to the conservation of the species because it contributes meaningfully to the representation, resiliency, or redundancy of the species. The contribution must be at a level such that its loss would result in a decrease in the ability to conserve the species. There is no significant variability in the habitats across the range occupied by Magazine Mountain shagreen, which encompasses approximately 8.75 ha (21.6 ac) at 27 talus habitats on Magazine Mountain's west and north slopes in Logan County, Arkansas. The basic ecological components required for the species to complete its life cycle are present throughout the habitats occupied by Magazine Mountain shagreen. No specific location within the current range of the species provides a unique or biologically significant function that is not found in other portions of the range. Furthermore, as discussed in the five-factor analysis above, all threats to this species have been eliminated throughout its range.

In conclusion, we have determined there are no existing or potential threats, either alone or in combination with others, that are likely to cause Magazine Mountain shagreen to become endangered or threatened now or within the foreseeable future throughout a significant portion of its range. On the basis of this evaluation, Magazine Mountain shagreen no longer requires the protection of the Act, and we remove Magazine Mountain shagreen from the Federal List of Endangered and Threatened Wildlife (50 CFR 17.11(h)).

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, state, and private agencies, groups, and individuals. This rule removes these Federal conservation measures for Magazine Mountain shagreen.

Effects of This Rule

This final rule revises 50 CFR 17.11(h) to remove the Magazine Mountain shagreen from the Federal List of Endangered and Threatened Wildlife. The prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, no longer apply to this species. Federal agencies are no longer required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect the Magazine Mountain shagreen. Because critical habitat was not designated for this species, this rule would not affect 50 CFR 17.95.

Post-Delisting Monitoring

Section 4(g)(1) of the Act requires us, in cooperation with the States, to monitor

species that are delisted due to recovery for at least 5 years. The purpose of this requirement is to develop a program that detects the failure of any delisted species to sustain itself without the protective measures provided by the Act. If, at any time during the monitoring period, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing.

A post-delisting monitoring plan has been developed for the Magazine Mountain shagreen, building upon and continuing the research that was conducted during the listing period. Peer review comments submitted in response to the draft post-delisting monitoring plan have been addressed within the body of the plan. The plan:

- (1) Summarizes the species' status at the time of delisting;
- (2) Defines thresholds or triggers for potential monitoring outcomes and conclusions;
- (3) Lays out frequency and duration of monitoring;
- (4) Articulates monitoring methods, including sampling considerations;
- (5) Outlines data compilation and reporting procedures and responsibilities;
- (6) Identifies localities selected for post-delisting monitoring; and
- (7) Lays out an implementation schedule, including timing and responsible parties.

The final post-delisting monitoring identifies measurable response triggers (thresholds) for detecting and reacting to significant changes in Magazine Mountain shagreen distribution, persistence, and protected habitat,. If declines are detected equal to or exceeding the thresholds described in the final post-delisting monitoring plan, the Service in combination with other post-delisting monitoring participants will investigate causes of these declines, including considerations of habitat changes, substantial human persecution, stochastic events, or any other significant evidence. The result of the investigation will be to determine if the Magazine Mountain shagreen warrants expanded monitoring, additional research, additional habitat protection, or resumption of Federal protection under the Act.

The final post-delisting monitoring plan is available at <http://www.regulations.gov> at Docket No. FWS–R4–ES–2012–0002, and any future revisions will be posted on our Endangered Species Program’s national web page (<http://www.fws.gov/endangered>) and on the Arkansas Ecological Field Services Office web page (<http://www.fws.gov/arkansas-es/>).

Required Determinations

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by Office of Management and Budget (OMB) under the Paperwork Reduction

Act. This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act

We have determined that we do not need to prepare an environmental assessment or environmental impact statement, as defined in the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We have determined that no Tribes or tribal lands will be affected by this rule.

References Cited

A complete list of all references cited in this final rule is available at <http://www.regulations.gov> at Docket No. [FWS–R4–ES–2012–0002].
or upon request from the Arkansas Ecological Services Field Office (see **ADDRESSES**).

Author

The primary authors of this final rule are staff members of the Arkansas Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

Accordingly, we hereby amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245; unless otherwise noted.

§17.11 [Amended]

2. Amend § 17.11(h) by removing the entry for “Shagreen, Magazine Mountain” under “Snails” from the List of Endangered and Threatened Wildlife.

Dated: April 30, 2013

Daniel M. Ashe

Director, U.S. Fish and Wildlife Service

Billing Code 4310-55-P

[FR Doc. 2013-11541 Filed 05/14/2013 at 8:45 am; Publication Date: 05/15/2013]